Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Deltech Facility
Deltech Corporation – Baton Rouge Facility
Baton Rouge, East Baton Rouge Parish, Louisiana
Agency Interest Number: 248
Activity Number: PER20050011
Proposed Permit Number: 0840-00006-V3

I. APPLICANT

Company:
Deltech Corporation
11911 Scenic Highway
Baton Rouge, LA 70807

Facility:
Deltech Facilty
11911 Scenic Highway, Baton Rouge, East Baton Rouge Parish, Louisiana
Approximate UTM coordinates are 672.6 kilometers East and 3,381.5 kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS

Deltech Corporation (Deltech) owns and operates a chemical manufacturing plant in Baton Rouge, Louisiana. The Deltech facility is a 50 year old styrene manufacturing complex. The facility was grandfathered and has received several permits reflecting modifications since that time. The primary operation at the Deltech facility is the manufacture of specialty aromatic monomers. These monomers are generally produced in the same method and with the same equipment on a campaign basis and distributed for commerce through inventory of the finished product. A list of Deltech's products includes styrene, methyl styrene, divinyl benzene, diisopropenyl benzene, and tertiary butyl styrene. Deltech also stores and distributes styrene monomer as a terminal operation.

Deltech currently operates under Part 70 Operating Permit No. 0840-00006-V2 issued on January 10, 2005. The initial Title V permit as well as the two following modifications authorized Deltech to install several projects. Some of these projects Deltech has elected not to pursue, others Deltech intends to construct. This renewal reflects these intentions.

This permit renewal allows continuous operation of boiler HB 513 during ozone season since NOx controls were installed on that boiler. Also, this renewal incorporates a general Title V permit issued for two new tanks (MV 817 and MV 818), as well as several changes of tank service issued since the last permit modification.

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III. PROPOSED PERMIT / PROJECT INFORMATION

Proposed Permit

Deltech Corporation submitted a permit application and Emission Inventory Questionnaire (EIQ) dated November 28, 2005, requesting a Part 70 Operating Permit Renewal.

Project Description

This permit renewal incorporates flue gas recirculation on Boiler HB 513 for NOx control and several changes of tank service issued over the last year. Also, this permit incorporates General Permit No. 3013-V0 issued on November 22, 2005 for two new tanks (MV 817 and MV 818). Additionally, Deltech has capped several groups of sources to increase operational flexibility. The new caps are the MS Drums Cap, SCP Drums Cap, Loading Cap, and Internal Floating Roof Cap. Deltech has also replaced several wastewater storage tanks and treatment tanks with a new source, the Wastewater Treatment System Emissions. The emissions from the MS Drums Cap and SCP Drums Cap have been reconciled to reflect actual operating conditions.

Existing Process

Specialty Monomers Process Description

Deltech produces specialty monomers in several steps. These are alkylation, purification of the alkylate, dehydrogenation of the alkylate, and purification of the dehydrogenate until distribution by several transport media. In several processes, alkylate is produced as a by-product of other manufacturing processes and purchased for use as a feedstock to the alkylate purification step. Other processes, such as 97% styrene manufacture, use material purchased from other processes similar to the crude dehydrogenated alkylate for feedstock to the purified dehydrogenate sequence.

Deltech operates according to several individual campaigns for the production of all specialty monomers. Individual campaigns are divided according to the two operating units, Methyl Styrene (MS) and Specialty Chemical Process (SCP).

Permitted Air Emissions

Estimated permitted emissions for this Part 70 Operating Permit Renewal in tons per year are as follows:

Pollutant	Before	After	Change
PM_{10}	59.61	59.61	-
SO_2	48.32	48.32	-
NOx	230.82	164.22	- 66.6
CO	150.87	150.87	-
VOC	57.79	54.01	- 3.78

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IV. REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Facility Specific Requirements Section of the draft permit, or where provided, Tables 2, 3 and 4 of the draft permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the draft permit, or where provided, Tables 2, 3 and 4 of the draft permit.

Applicability and Exemptions of Selected Subject Items

ID No:	Applicable Requirement	Compliance Method/Provisions	Notes
AT 513 Condensate Stripper Vent	Waste Gas Disposal LAC 33:III.2115	Exempt. The waste stream has a combined weight of VOC less than 100 lbs in any continuous 24-hour period. (LAC 33:III.2115.H.1.c)	
	Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations LAC 33:III.2147	Exempt – Subject to the Hazardous Organic NESHAP (HON) (LAC 33:III.2147.A.2.g)	
	Comprehensive Toxic Air Pollutant (TAP) Emission Control Program LAC 33:III.5109	Comply with NESHAP (HON) Subparts F and G, 40 CFR 63.100, 113(a)(3) and 113(d)	Determined as MACT
	NSPS Subpart NNN – Distillation Operations 40 CFR 60.660	Process vent is required to comply only with the HON for continuous monitoring of recovery device operating parameters and the associated testing, reporting and recordkeeping. [63.110(d)(5)(ii)(C)]	TRE > 1.0
	NSPS Subpart RRR – Reactor Processes 40 CFR 60.700	Not Applicable – Source does not meet the definition of a reactor process. (40 CFR 60.701)	
	NESHAP (HON) Subparts F and G for Process Vents 40 CFR 63.100, 113(a)(3) and 113(d)	Group 2 process vent. Monitoring, TRE calculation, reporting and recordkeeping are required. Daily average temperature on condenser outlet (product side) shall be maintained < 100°F as indicated in the Part 70 Specific Condition No. 5	TRE > 1.0 but <= 4.0
GQ 001 Flare System	Smoke from Flaring LAC 33:III.1105	Not Applicable – Flare is not used in connection with pressure relief valve releases for control over process upsets. (LAC 33:III.1105)	No pressure relief valves vented to flare
	Emissions Limits LAC 33:III.1311.B	Not Applicable – The flare combusts gaseous fuels only. Gaseous fuels are not included in the definition of "Process Weight". (LAC 33:III.111)	
	Emission Standards for Sulfur Dioxide LAC 33:III.1503	Exempt – Emissions of sulfur dioxide are kept below 2000 ppmv. Units emitting < 250 TPY of sulfur compounds may be exempted. (LAC 33:III.1503.C)	

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GQ 001 Flare System (Continued)	Waste Gas Disposal LAC 33:III.2115	Exempt – The vent stream from the individual sources serviced by this control system contains less than 100 lbs of VOC during a continuous 24-hour period. (LAC 33:III.2115.H.1.c)	
	Comprehensive Toxic Air Pollutant (TAP) Emission Control Program LAC 33:III.5109	Flare shall comply with applicable HON provisions.	Determined as MACT
	NSPS Subpart A – General Control Device Requirements 40 CFR 60.18	The flare shall be operated in accordance with the requirements of 40 CFR 60.18(b) for non-assisted flares.	
	NSPS Subpart VV–Standards of Performance for Equipment Leaks of VOC in SOCMI 40 CFR 60.480	Not Applicable – No pressure relief valves vent to flare.	
	NSPS Subpart NNN – SOCMI Distillation Operations 40 CFR 60.660	A heat sensing device and a flow indicator shall be operated on the flare to comply with 40 CFR 60.663(b).	Distillation units routed through flare: T 102, T105, T 106, T 5, T 5A, T 6A only during startup AT 304 will vent to flare when making TBEB
	NSPS Subpart RRR – Reactor Processes 40 CFR 60.700	Exempt – Reactors were constructed prior to applicability date of June 29, 1990, except DH5. However, DH5 is a Group 1 process vent and is required to comply only with the HON. [40 CFR 63.110(d)(7)]	Reactors routed thru flare: Alkylation reactors XD 101 A/B (startup). Dehydro reactors DH303 & DH1 (all year), DH4 & DH5 (startup)
	NESHAP Subpart FF – National Emission Standard for Benzene Waste Operations 40 CFR 61.342	No benzene operations that require control. Total annual benzene quantity from facility waste is less than 10 Mg/yr. [40 CFR 61.342(a)]	
	NESHAP (HON) Subpart A - General Provisions, 40 CFR 63.11	Comply with Subpart A, 40 CFR 63.11(b) – General Provisions for control devices.	
	NESHAP (HON) Subparts F and G for Process Vents 40 CFR 63.100 and 113	The flare shall comply with the provisions in 40 CFR 63.11(b) of Subpart A in accordance with 63.116(a).	Control device for Group 1 process vents DH1 (all year), DH4 & DH5 during startup / malfunction Group 2 process vents routed through flare only during startup: Alkylation reactors XD 101A/B; Distillation Towers T 102, T 105, T 106, T 5, T 5A & T 6A
	NESHAP (MON) Subpart FFFF for Continuous Process Vents 40 CFR 63.2455	The flare shall meet the performance requirements in 40 CFR 63.11(b) (General Provisions) in accordance with 63.987 [40 CFR 63.2450(e)]	Control device for Group 1 process vent DH303 Group 2 process vents routed through flare: AT 304 will vent to flare when making TBEB

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ID No:	Applicable Requirement	Compliance Method/Provisions	Notes
HF 001, HF 004, HF 005 Dehydro Furnaces	Control of Emission of Smoke LAC 33:III.1101	The emission of smoke shall be controlled so that the shade or appearance of the emission is not darker than 20 percent average opacity. (LAC 33:III.1101.B)	
	Emissions from Fuel Burning Equipment LAC 33:III.1313	Emissions of particulate matter to the atmosphere shall not exceed 0.6 pounds per 10^6 BTU of heat input. (LAC 33:III.1313.C)	Calculated emissions for the boilers are < 0.01 lb/MM BTU
	Emission Standards for Sulfur Dioxide LAC 33:III.1503	Exempt – Flue gases shall not exceed 2000 ppmv for 3hr avg. *Units emitting < 250 tpy may be* exempted. (LAC:III.1503.C)	Furnaces are < 250 tpy
	Waste Gas Disposal LAC 33:III.2115	Exempt – The vent stream from the individual sources serviced by this control system contains less than 100 lbs of VOC during a continuous 24-hour period. (LAC 33:III.2115.H.1.c)	
	Comprehensive Toxic Air Pollutant (TAP) Emission Control Program LAC 33:III.5109	Furnaces shall comply with applicable HON provisions.	Determined as MACT
	NSPS Subpart D – Fossil-Fuel-Fired Steam Generators 40 CFR 60.40	Not Applicable – The heat input rate is < 250 MM BTU/hr. [40 CFR 60.40(a)]	Construction dates: HF 001: 1967 HF 004: 1963 HF 005: 1997 Heat Input Rates: HF 001: 66.0 MMBtu/hr HF 004: 66.0 MMBtu/hr HF 005: 47.8 MMBtu/hr
	NSPS Subpart Db – Industrial-Commercial-Institutional Steam Generating Units 40 CFR 60.40b	Not Applicable – The heat input rate is <100 MM BTU/hr. [40 CFR 60.40b(a)]	
	NSPS Subpart Dc – Small Industrial-Commercial-Institutional Steam Generating Units 40 CFR 60.40c	Comply with the reporting and recordkeeping requirements stated in §60.48c	
	NSPS Subpart RRR – Reactor Processes 40 CFR 60.700	Exempt – Reactor DH4 was constructed prior to applicability date of June 29, 1990, except DH5. However, DH5 is a Group 1 process vent and is required to comply only with the HON. [40 CFR 63.110(d)(7)]	Reactors DH4 and DH5 are routed to furnaces HF 004 and HF 005
	NESHAP (HON) Subparts F and G for Process Vents 40 CFR 63.100 and 113	Process vent streams are introduced with the primary fuel. Therefore, the furnaces are exempt from monitoring and performance testing in accordance with 63.114(a)(3) and 116(b)(2).	Control device (HF 004 and HF 005) for Group 1 process vent streams from DH4 and DH5 reactors
DH1, DH4, DH5, DH303 Dehydro genation Reactors	Waste Gas Disposal LAC 33:III.2115	Exempt. The waste stream has a combined weight of VOC less than 100 lbs in any continuous 24-hour period. (LAC 33:III.2115.H.1.c)	Group 1 process vents DH4 and DH5 vent to HF 004 and HF 005 respectively. DH4 and DH5 will vent to flare GQ 001only during startup or malfunction. DH1and DH303 vent only to the flare.
	Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations LAC 33:III.2147	Exempt – Subject to the Hazardous Organic NESHAP (HON). (LAC 33:III.2147.A.2.g)	
	Comprehensive Toxic Air Pollutant (TAP) Emission Control Program LAC 33:III.5109	Comply with NESHAP (HON) Subparts F and G, 40 CFR 63.100, 113(a)(1), 113(a)(2) and (b) Comply with NESHAP (MON) Subpart FFFF, 40 CFR 63.2455	HON applies to DH1, DH4, and DH5 MON applies to DH303

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ID No:	Applicable Requirement	Compliance Method/Provisions	Notes
DH1, DH4, DH5, DH303 Dehydro genation Reactors (Continued)	NSPS Subpart RRR – Reactor Processes 40 CFR 60.700	Exempt – Reactors were constructed prior to applicability date of June 29, 1990, except DH5. However, DH5 is a Group 1 process vent and is required to comply only with the HON. [40 CFR 63.110(d)(7)]	
	NESHAP (HON) Subparts F and G for Process Vents 40 CFR 63.100, 113(a)(1), 113(a)(2) and (b)	The final control device for DH4 and DH5 is furnaces HF 004 & HF 005 respectively. The furnaces shall achieve a 98% or greater HAP removal efficiency. The final control device for DH1 (all year), DH4 and DH5 (startup or malfunction) is the flare.	Applies to DH1, DH4, DH5
	NESHAP (MON) Subpart FFFF for Continuous Process Vents 40 CFR 63.2455	The final control device for DH303 is the flare.	Applies to DH303

Streamlined Equipment Leak Monitoring Program

Unit or Plant Site	Programs Being Streamlined	Stream Applicability	Overall Most Stringent Program
Methyl Styrene Unit (MS)	40 CFR 63 Sub H - HON LAC 33:III.2122 40 CFR 60 Sub VV 40 CFR 61 Sub J & V	5% VOHAP 10% VOC 10% VOC 10% Benzene	40 CFR 63 Subpart H -HON
Specialty Chemical Process Unit (SCP)	40 CFR 63 Sub FFFF - MON LA Non-HON LAC 33:III.2122 40 CFR 60 Sub VV	5% VOHAP 5% VOTAP 10% VOC 10% VOC	40 CFR 63 Subpart FFFF-MON (effective 5/08) LA Non-HON
Styrene Storage	40 CFR 63 Sub H - HON LAC 33:III.2122	5% VOHAP 10% VOC	40 CFR 63 Subpart H -HON

Prevention of Significant Deterioration Applicability

N/A

MACT requirements

The Deltech site is a major source of toxic air pollutants (TAPs) and emits benzene and styrene above their respective minimum emission rate (MER). Therefore, the Deltech facility shall comply with all applicable provisions of the Louisiana Air Toxics Program, LAC 33:III.Chapter 51, regarding these compounds.

The Deltech facility is a chemical manufacturing plant and shall comply with the applicable provisions of New Source Performance Standards (NSPS); the applicable provisions of the Hazardous Organic NESHAP (HON) associated with the Methyl Styrene unit (MS); and the

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Miscellaneous Organic Chemical Manufacturing NESHAP (MON) and Louisiana Non-HON equipment leaks associated with the Specialty Chemical Process unit (SCP).

Air Quality Analysis

Dispersion Model(s) Used: None

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Air Quality Standard (NAAQS)

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Emission Point List of the draft Part 70 permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Emission Point List of the draft Part 70 permit.

V. PERMIT SHIELD

N/A

VI. PERIODIC MONITORING

N/A

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VII. Glossary

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

CAM - Compliance Assurance Monitoring rule – A federal air regulation under 40 CFR Part 64

Carbon Black - A black colloidal substance consisting wholly or principally of amorphous carbon and used to make pigments and ink.

Carbon Monoxide (CO) – (Carbon monoxide) a colorless, odorless gas produced by incomplete combustion of any carbonaceous (gasoline, natural gas, coal, oil, etc.) material.

Cooling Tower – A cooling system used in industry to cool hot water (by partial evaporation) before reusing it as a coolant.

Continuous Emission Monitoring System (CEMS) – The total combined equipment and systems required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a source effluent.

Cyclone – A control device that uses centrifugal force to separate particulate matter from the carrier gas stream.

Duct Burner – A device that combusts fuel and that is placed in the exhaust duct from another source (such as a stationary gas turbine, internal combustion engine, kiln, etc.) to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a steam generating unit.

Federally Enforceable Specific Condition - A federally enforceable specific condition written to limit the potential to Emit (PTE) of a source that is permanent, quantifiable, and practically enforceable. In order to meet these requirements, the draft permit containing the federally enforceable specific condition must be placed on public notice and include the following conditions:

- A clear statement of the operational limitation or condition which limits the source's potential to emit;
- Recordkeeping requirements related to the operational limitation or condition;
- A requirement that these records be made available for inspection by LDEQ personnel;
- A requirement to report for the previous calendar year.

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Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Heat Recovery Steam Generator (HRSG) – A steam generator that recovers exhaust heat from a gas turbine, and provides economizing and steam generation surfaces.

Hydrogen Sulfide (H_2S) - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

NESHAP - National Emission Standards for Hazardous Air Pollutants –Air emission standards for specific types of facilities, as outlined in 40 CFR Parts 61 through 63

Nitrogen Oxides (NO_x) - Compounds whose molecules consist of nitrogen and oxygen.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

NSPS - New Source Performance Standards – Air emission standards for specific types of facilities, as outlined in 40 CFR Part 60

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit - Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$ 10 tons per year of any toxic air pollutant; $\geq$ 25 tons of total toxic air pollutants; and $\geq$ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10} - Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

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Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Selective Catalytic Reduction (SCR) – A noncombustion control technology that destroys NO_X by injecting a reducing agent (e.g., ammonia) into the flue gas that, in the presence of a catalyst (e.g., vanadium, titanium, or zeolite), converts NO_X into molecular nitrogen and water.

Sulfur Dioxide (SO_2) – An oxide of sulphur.

TAP - Toxic Air Pollutant (LDEQ acronym for air pollutants regulated under LAC 33 Part III, Chapter 51, Tables 1 through 3.

Title V permit – See Part 70 Operating Permit.

"Top Down" approach – An approach which requires use of the most stringent control technology found to be technically feasible and appropriate based on environmental, energy, economic, and cost impacts.

Turbine – A rotary engine in which the kinetic energy of a moving fluid is converted into mechanical energy by causing a bladed rotor to rotate.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.